Certification for application management

As per assignment of the ASL Foundation a standards framework for application management has been set up, based on which application management organizations can have themselves certified. This standards framework is now being developed into a NEN-standard. In this article Frances van Haagen, Lucille van der Hagen, Machteld Meijer and René Sieders explain what the standards framework entails, how it is applied and how it relates to, among other things, the NEN-ISO 20000 standard for service management.

Introduction

During the last years the ASL Foundation has developed a certification standard, especially customized for organizations which are involved in application management. This certification standard, based on ASL[1], makes it possible to execute an independent, comparable and unequivocal assessment of the process maturity of the application management organization. In the fall of 2006 the standard has been reworked to arrive at an official NEN-standard for application management (the 'NEN-standard'[2]).

For the discipline information technology in the recent years more standards and growth models have come onto the market or have been further developed, such as NEN-ISO 20000- for service management, ISO 12207 for software life cycle processes, ISO 9001:2000 and CMMI. Therefore in this article we compare the NEN standard with the most relevant standards and growth models, whereby we indicate the added value of the NEN standard with a view to improvement of application management organizations. We want to inform organizations, which want to use this standards framework and possible want to be certified based thereon, about what such a certification trajectory entails and where the possible traps are. We describe these subjects based on the experiences obtained in the past year at the first organization which has obtained a certificate for application management, the Serviceline Applicatieservices UWV of Getronics PinkRoccade.

The NEN standard has resulted from the ASL standards framework, which is developed by the ASL Foundation. First we will briefly discuss this ASL standards framework and will then continue with an extended explanation of the NEN standard.

Predecessor of the NED standard: the ASL standards framework

For improvement and certification of application management organizations the ASL Foundation has developed two standards products in 2005:

1. an ASL standards framework: here requirements have been defined for each of the application management processes, classified into maturity levels;
2. an ASL assessment method: here the method is described which must be followed in the assessment of organizations or organization parts which want to have the maturity of their application management processes assessed. By a strict application of the method the realized improvements become visible in sequential assessments of an organization and the results of assessments at different organizations become mutually objectively comparable.

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[1] ASL, Application Services Library, is a method to set up and professionalize the activities which are necessary to be able to manage, maintain and renew applications (Van der Pols, 2001). These activities are arranged in the form of processes. In this article we do not give an in-depth description of ASL, assuming that in the meantime the model is known.

[2] At the moment that this article is written, the number of the standard was not yet know, thus for the time being it is indicated with 'NEN standard'.

ASL has been used as basis for these standards products, because in The Netherlands ASL is the *de facto* standard for application management and also gains ground quickly outside The Netherlands.

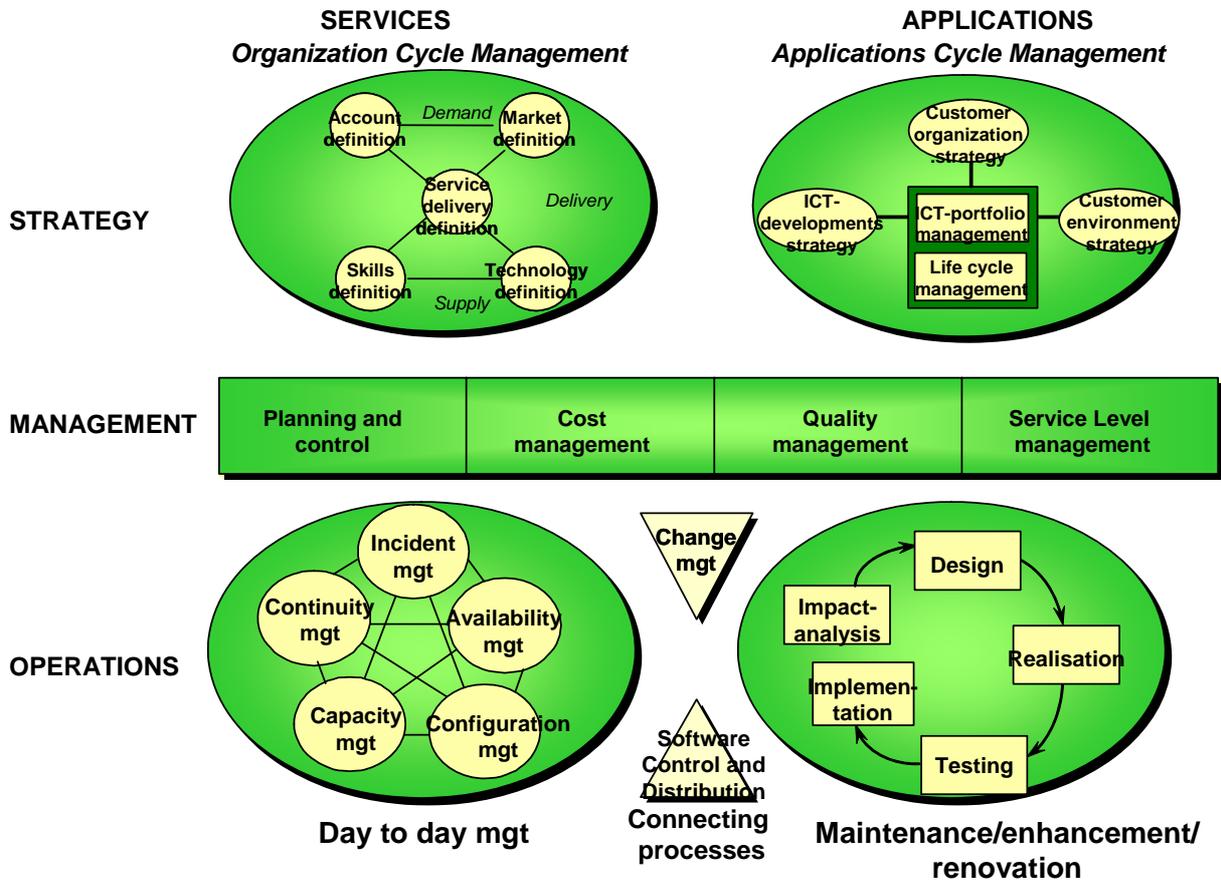Figure 1 gives an overview of the ASL model.

Figure 1 Application Services Library (ASL) (Van der Pols, 2001*)*

The standards products deliver a concrete, recognizable 'hat stand' and 'yardstick' to application management organizations with which they can compare their own activities and operation directly, possibly even as benchmark with other organizations, without several interpretations of and amendments to the standards framework being necessary.

With this standards framework objective criteria have become available for client organizations, which they can take into account in their supplier selection.

NEN standard for application management

In 2006 the Dutch (Nederlands) Normalization Institute (NEN) showed interest in the ASL standards framework. This has led to the development of an official NEN standard for application management.

The NEN standard is a 'traditional' standard, which has been enriched by the application of a growth model.

In the standard the term application management is defined as follows:
'The whole of tasks, responsibilities and activities which serve to bring and keep applications in such a state that these comply with the established requirements and needs of the owners thereof, during the whole life time of the business processes which are supported by the applications'.

Application management can also be defined based on the processes which play a role in it. As the ASL already shows, these processes can be classified in two ways:

- a division on the one hand in processes aimed at the service provision of the application management organization and on the other hand processes aimed at maintenance and renewal of applications;
- a division in processes at strategic, management and operational level.

Structure of the standard

Five maturity levels have been defined, which correspond with the 'process strength' of the organization. The higher the process strength, the better the organization is able to perform and improve its processes. The levels increase from incomplete, through initial, structured, standardized and optimizing to supply chain. Level 2, structured, means for example that the basis activities of a process take place in a structured and demonstrable manner. At the highest level also the total 'chain', in which the organization operates, is taken into consideration.

The establishment of the maturity levels is derived from CMMI and other growth models, and from the ASL Self Evaluation (Deurloo c.s., 2003) from which practical experience has been obtained in the past six years (Sieders, 2003) and which is used by many application management organizations as tool for targeted process improvement.

For each application management process the requirements have been formulated which must be satisfied in order to realize a certain maturity level. Here it concerns both the maturity in the execution of the process and the maturity in the control, securing and improvement of the process. The Plan-Do-Check-Act cycle has been used as important assumption in the build up of the levels.

Maturity level	Typing
0 (incomplete)	some loose activities
1 (initial)	basis activities ('Do') occur ad hoc
2 (structured)	basis activities occur in a structured and demonstrable manner ('Plan – Do')
3 (standardized)	all activities occur in a structured manner, are demonstrable, documented and standardized for the organization to be assessed ('Plan – Do – Check – Act' op activities level)
4 (optimizing)	the process is continuously improved based on qualitative and quantitative key figures ('Plan – Do – Check – Act' at process level)
5 (chain supply)	the process is set up, executed and improved in consultation with chain partners; chain production takes place

Table 1 Overview of maturity levels

The requirements for level 1 do not form part of the requirements in the NEN standard, but are included in the explanatory statement. We have done this, because at level 1 no requirements can be stated which are sufficiently unique and quantifiable to be able to serve as starting point for a formal assessment.

The lowest level at which certification can take place is therefore level 2.

Structure of certificates

A complete certificate can only be obtained for all processes jointly. Modular certificates can be obtained for some combinations of processes, being:
- all daily management processes plus all management processes;
- all processes for maintenance and renewal of applications, plus all management processes;
- all executing processes (daily management plus maintenance and renewal) and all management processes;
- all strategic processes.

The combination possibilities are determined by the factual dependencies between the different processes.

In the framework below some examples of standards requirements are given for each maturity level from level 2 onwards:

Some examples of standards requirements

Level 2:

- The process is executed based on the process description and the arrangements made.
- Arrangements have been made about opening times and the availability of a reporting centre for the intake of incidents.
- Of more than 95% of the applications it is known and documented which versions run on which platforms and at which clients.
- At the set up of the impact analysis attention is paid to the effects on maintainability, manageability and exploitability.
- It does not occur that application managers put through changes simultaneously to the same object, without knowing this about each other.
- Plannings are made based on previous experiences.
- The future of the applications is thought about periodically and in a planned manner. Hereby the developments in the user organizations, the user environment and the IT are taken into account.

Level 3:

- There is a standard for the method in which reporting on the process takes place.
- All incidents are assessed. Based on this assessment the incidents are directly handled, or put through to a more specialized function to be solved.
- Results and deviations from the plannings are tested on a regular basis.
- The part of the application portfolio, for which application management is responsible, is actual and has been completely documented; status, strengths and weaknesses of the portfolio are known.
- On a regular basis the execution of the process is tested based on the process description and the output of the process.
- Based on these tests corrective measures are taken in case of deviations.

Level 4:

- Quantitative objectives have been established for the process in terms of key figures.
- The process is set up in such a way that the key figures are gathered for the process, the execution thereof and the management thereon. Hereby comparable applications and organizations are also taken into account.
- On a regular basis tests and reports are made on the results and deviations from the qualitative and quantitative objectives and the defined key figures.

Level 5:

- Coordination and decision taking takes place over the chain organizations with regard to the reconciliation, the improvement and the renewal of the process.
- Execution of the process takes place in coordination with all chain organizations which are involved in the process.

Positioning compared to other standards

The NEN standard is the first standard which is specifically customized for all levels and aspects of application management.

Different existing standards are applied by some application management organizations, but these standards do not cover the whole of the total work field application management.

Here it mainly concerns the following standards:
- ISO 20000
- ISO 12207
- ISO 14764

Below we give a short explanation of these three standards and describe how they relate to the new standard for application management. In addition we will shortly elaborate on the relation of the NEN standard with ISO 9001:2000 and with CMMI.

Typing of ISO 20000

ISO 20000 is a general standard for service management processes. In this standard the following definition of 'service management' is formulated: 'management of service provision to comply with the operational requirements'. ISO 20000 is applicable for all service management processes, inside and outside the ICT, regardless of what is managed. Because this standard has been set up generically, it can be used by all service providers. Thus within the ICT it is applicable both on network management, system management and application management.

The standard is structured as follows:
General requirements around management responsibility, availability and control of documentation and competence of the staff members are discussed separately. They are therefore not translated into specific requirements to the separate service management processes. In addition general requirements are stated for planning and implementation of service management processes. This category of requirements, which are also discussed separately, is formulated based on a closed Deming cycle ('Plan – Do – Check – Act'). Thereby it is not only about the execution of the processes, but also about planning, measurement, monitoring, control and continuous improvement.

With regard to the content of these general requirements and the way in which they are handled, ISO 20000 is comparable with ISO 9001:2000.

In addition to the general requirements ISO 20000 states requirements for most of the service support – and service delivery – processes which are known to many from ITIL. For each process the objective is indicated. Next the requirements are formulated with which the process must comply to be able to realize the objective, in terms of aspects and activities which need attention.

Contrary to what the definition of service management probably seems to presume, ISO 20000 barely pays attention to processes which are aimed at realizing and implementing changes in a service or infrastructure. The standard limits itself to the requirements that changes must be implemented in a controlled manner and that it must be established for all changes whether they have been successful.

ISO 20000 does not pay systematic attention to strategic processes.

Comparison with the NEN standard

The NEN standard is specifically intended for application management organizations and handles all processes which play a role in application management, both at strategic, management and operational level. The service management processes, which are handled in a generic manner in ISO 20000, are targeted at application management in the NEN standard by means of the formulation of concrete requirements to the application management organization and the manner in which it executes its processes. In addition there are requirements which are applicable to the maintenance processes, which ensure that changes in applications are made and implemented in a controlled and structured manner. In addition the standard sets requirements for strategic processes. These processes are aimed at making policy for the application management organization and for the managed applications.
At this strategic level insight in developments in and around the business processes of the demanding organizations and in new technological developments are important criteria for process quality.

The NEN standard discusses the requirements, set for application management, per individual application management process, whereby the general requirements in the area of process management and process improvement form part of the requirements formulated per process.

Other similarities and differences between the texts of the standards are:
– The requirements set for reporting on the service provision are formulated in such a way in the NEN standard, that they give more space to an organization specific interpretation than is the case in ISO 20000.
– In ISO 20000 requirements to the management of business relations and suppliers are included; herein the standard is comparable with ISO 9001:2000. The NEN standard elaborates less explicitly on these aspects.
– The NEN standard presumes a situation in which the services are already set up; ISO 20000 also sets requirements for the manner in which the set up process must be given form and to the manner in which new or changed services are implemented.

We have already shown that in the NEN standards the requirements for each process are grouped in maturity levels, which relate to the quality of the execution of the processes, but also and especially to control, safeguarding and improvement of the processes. Due to this the NEN standard can be very useful as a growth model for an application management organization.

To be able to obtain an ISO 20000 certificate, all standards requirements must be complied with, while the NEN standard offers certification possibilities at different maturity levels. In addition modular certificates can be obtained for some combinations of processes.

An organization working in conformity with ISO 20000 does not per definition comply with the NEN standard. Not only do requirements for maintenance and strategy barely appear in ISO 20000, but the requirements to the execution of the process have been accentuated in such a way in the NEN standard that only a specialized application management organization can comply with it. If an application management organization performs the executing and management processes in accordance with the NEN standard at level 3, then it complies for the larger part with the requirements of ISO 20000.

In the table below the relation between ISO 20000 and the NEN standard is summarized:

	ISO 20000	NEN-standard
Objective	Standard for service management	Standard for application management
Target group	All organizations which provide (IT) management services – (IT) managers, quality managers, auditors	Organizations which manage, maintain and renew applications – IT-managers, quality managers, auditors
Scope	Service management- (or management) processes, including the control thereon	Service management- (or day-to-day management) processes, management processes, application maintenance/enhancement/renovation processes, strategic processes
	Aimed at implementation and execution of services and processes	Aimed at execution of services and processes
Level	Management and operational service management processes, including the control thereon; some strategic activities	Strategic, management and operational processes
Objects of management	All necessary resources for the realization of a(n) (IT-)service	Applications
Approach	Aimed at quality management principles	Aimed at process activities, in which quality management principles are processed in main lines
Growth model	No	Yes
Position	International standard	National standard

Table 2 Comparison of ISO 20000 and the NEN standard

In short, for application management organizations the NEN standard is more concrete and has a lower threshold than ISO 20000. There is no transformation necessary towards the application management processes and there are (modular) certification possibilities at different levels.

For application management organizations, which already have an ISO 20000 certificate, the NEN standard offers added value because based on specific, recognizable requirements further quality improvement of the service provision can be worked out at operational, management and strategic level. Thereby the classification in maturity levels makes it easier to follow a realistic growth path.

Typing of ISO 12207

ISO 12207 is a standard for software life cycle processes. The whole life cycle of software is described based on five primary processes: acquisition, delivery, development, operation and maintenance. Some supporting processes have also been identified: documentation, configuration management, quality assurance, verification, validation, review, audit and problem solving. In addition processes have been included which correspond with the life cycle of the organization: management, infrastructure, improvement and training. All processes are described based on activities and tasks.

Annexes have been added to the standard, which elaborate extensively the objectives and results of the processes discussed. The standard does not describe how the specific process activities must be implemented or executed.

ISO 12207 therefore states requirements which not only relate to activities of the ICT organization, but also to activities of the requesting organization, such as acquisition, specification of system requirements and some test activities.

Comparison with the NEN standard

In the NEN standard only the responsibility area of the application management organization is described, where necessary delimited with regard to the responsibility area of the requesting organization. Within this delimitation all application management processes are discussed systematically. These processes can be found back in parts in ISO 12207, distributed over the different type of processes. Hereby the operational activities inside the day-to-day management , maintenance and enhancement processes get less attention than in the NEN standard and the strategic level is barely discussed.

ISO 12207 also differs from the NEN standard, because in the NEN standard extensively detailed requirements are stated for issues such as testing, documentation, verification and validation. With this the relation between ISO 12207 and the NEN standard is to some extent comparable with the relation between CMMi and the NEN standard (Meijer c.s., 2004). Contrary to the NEN standard, ISO 12207 contains also requirements for the proposal process. The improvement process described in ISO 12207 contains requirements which are only stated at maturity level 4 in the NEN standard.

For application management organizations the NEN standard is, in short, more recognizable and more complete than ISO 12207. The NEN standard is aimed at activities for which application management is specifically responsible, so that much less choices have to be made regarding applicability and relevance of certain standards requirements. In addition the threshold to obtain a certificate is lower for the NEN standard.
To get inspiration during the set up and improvement of the maintenance processes it is useful to obtain knowledge of the extensive requirements stated by ISO 12207 for testing and documentation, among other things. However, it is obvious that CMMI should also be consulted for the process areas concerned.

Typing of ISO 14764

ISO 14764 is a further detailing of the requirements which ISO 12207 states for the maintenance process, with mainly the suppliers of standard packages as target group.

The standard is mainly aimed at putting through changes to remedy defects in the software or to meet changed user requirements. The requirements to the related maintenance processes are formulated in a very detailed way, even to such an extent that the literal compliance with the standard could lead to bureaucracy.

Attention is paid systematically to the manner in which the factor 'maintainability' must be involved in the development of the software.

Comparison with the NEN standard

Although ISO 14764 is not suitable for complete quality assurance of application management organizations, it is useful to also use this standard as a source of inspiration in the set up of the maintenance processes. It gives excellent background information, not only about maintainability as 'requirement' for software, but also about products and documents which can be useful in the formation and safeguarding of the maintenance processes.
it offers a useful supplement to the NEN standard.

Typing of ISO 9001:2000

ISO 9001:2000 states general requirements for the (quality) management system of organizations and in addition states requirements for the processes which are used for the realization of products in general.

A comparison between ISO 9000 and ASL, on which the NEN standard is based, has been prepared previously (Meijer, 2003).

Comparison with the NEN standard

At level 3, the NEN standard covers the requirements of ISO 9001 for most of the items, for sure where it concerns the responsibilities and quality measures within the different application management teams of an organization. With regard to the total (quality) management system there still remains some items for which additional measures must be taken to comply with ISO 9001.

For application management organizations, which already have an ISO 9001 certificate, the NEN standard offers targeted support to get to a further improvement.
For application management organization which operate according to the NEN standard (whether or not to obtain a certificate), it can be interesting that an ISO certificate can usually also be obtained in their situation. Even better: In practice it appears that organizations can obtain an ISO 9001 certificate more easily than a NEN standard certificate at level 2. Food for thought?

Typing of CMMI

CMMI is a growth model of which an important component (CMMI for Development or CMMI-DEV) is aimed at organizations which develop products and is mainly applied on software and system development. For applications this means that CMMI is mainly applicable on construction and project-based maintenance or 'renewed construction' of applications. Just like the standard for application management CMMI distinguishes five levels of maturity. In (Meijer c.s., 2004) these levels are discussed in relation to improvement of application management services based on ASL.

CMMI-DEV is not aimed at service management processes. To provide for this gap in the IT work field, IT Service CMM has been developed in The Netherlands (Niessink, 2005). IT Service CMM will be included shortly in CMMI for Services (CMMI-SVC)[3], which is currently in development as growth model for service providing organizations.

Comparison with the NEN standard

In CMMI the process areas are described which must be filled in for process management, project management, product development and process support. With this CMMi is mainly aimed at the management and operational level and less at the strategic level. That applies for CMMI-DEV and will also apply for CMMI-SVC.
CMMI is the indicated tool for documenting the process maturity of an application development organization and for the improvement of the quality of the application development processes and the steering and safeguarding of those processes.
For application management organizations it applies, that mainly CMMI-DEV is applicable for processes on the management level and for the processes in which the applications are changed, for sure when these are executed project wise. CMMI-SVC is applicable for service management processes. CMMI helps with the set up and improvement of the steering and safeguarding aspects of all processes. The NEN standard offers added value here, because in addition to CMMI it delivers more concrete indications for the factual set up of all executing application management processes and the strategic processes.

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[3] see https://bscw.sei.cmu.edu/pub/bscw.cgi/0/424939

Reasons for certification

The reasons for an application management organization to have its application management processes certified are usually not different than those for any other organization wanting to obtain a quality certificate. Certification can serve as tool to get and keep processes in order, to distinguish oneself on the market, to grow to a higher maturity level, to compare oneself with other organizations, as method for principals to assess their suppliers, etcetera.

Important benefits, which we see for an organization which lets itself be certified, are:
- The certification trajectory itself leads to quality improvement. To have the items in order in a demonstrable manner, an organization usually has to arrange several things. You discover this already during the preparations, and otherwise during the research by the certification team or by the presentation of the (final) assessment.
- The certificate delivers a kind of diploma or 'declaration of good standing' which you can use on the one hand for (potential) principals, but on the other hand also for your own staff members (this is what we did it for, we can be proud of this).
- The certificate is only valid for a limited time. This set up forces to also safeguard the achieved results and to remedy possible non-critical defects. With this the certificate is a kind of last resort. Not obtaining the certificate is not as bad as losing the certificate again.
- Having a certificate at a certain level encourages to obtain a certificate at a higher level. Why would you be satisfied with level 2 if level 3 is just within arm's reach and provides demonstrable benefits?

Of course there are also counter arguments. We mention some:
- Any quality improvement costs money. Sometimes this investment provides immediately measurable benefits, such as efficiency improvement, but sometimes financial benefit is only obtained in the long term.
- A certification trajectory in itself costs time and money. Gathering evidence and the reconciliation and exchange of information with the certifiers takes a lot of time.
- As said: losing the certificate is worse than not obtaining the certificate. If you start with it, you are, also emotionally, tied to it.
- If you want to certify yourself, you must also bring processes to a certain level, for which it might not really be necessary at that moment.

Roles at the assessment

During a certification assessment different roles must be filled in, which are described in the framework below:

Roles at the assessment

Sponsor
The organization being assessed is asked to assign a sponsor: a member of the own management. Together with this sponsor the objective of the assessment is determined; he provides the necessary resources and uses the results of the assessment to realize the business objectives of the organization.

Project leader
It is advisable to assign a project leader within the organization to be assessed, who internally coordinates all preparations and the assessment itself.

Leader assessment team
The leader of the assessment team, or Lead Assessor, is a person qualified by the certificating institute, who plans the assessment, coordinates the execution, brings consensus within the team with regard to the evaluation and provides the results of the assessment to the sponsor.

A Lead Assessor must, among other things, comply with the following criteria:
- demonstrable knowledge of the ASL model, by the EXIN-certificate 'ASL Foundation';
- training as Lead Assessor;
- demonstrable knowledge of the Assessment method pertaining to the standard;
- multiple years of experience in the application management work field.

For the time being the ASL BiSL Foundation keeps a register of organizations which may execute the certification and of qualified Lead Assessors.

Members assessment team
The assessment team consists to the Lead Assessor and a minimum of two team leads, or Assessors.
Assessors are qualified persons who, based on their knowledge, competences and experience, are selected by the Lead Assessor (possibly upon nomination by the sponsor) to gather information from the organization in team context and based thereon determine the process strength in consensus.

The following qualification requirements are stated for an Assessor:
- demonstrable knowledge of the ASL model, by the EXIN-certificate 'ASL Foundation';
- demonstrable knowledge of the Assessment method;
- a minimum of five years of relevant and recent experience in application management;
- demonstrable audit experience;
- participates at least once in two years in an application management assessment.

It is evident that the assessment of an application management team is equal to the assessment of a group of experts in their trade. So that requires that you know that trade well and that you can put yourself in the work environment.

Experiences first certification assessment

As we have already indicated, the ASL Foundation, as predecessor of the NEN standard, has developed an ASL standards framework, with which practical experience has been obtained. The requirements in this ASL standards framework correspond to a large part with those in the NEN standard. The experiences obtained with the standards framework are therefore also to a large extent applicable to the NEN standard.

Several organizations have started with the ASL standards framework: Getronics PinkRoccade, Ordina, Sogeti and IND. Below we give a summary of the learning experiences from one concrete case: the Serviceline Applicatieservices UWV of Getronics PinkRoccade, in this article hereafter called GPR.

Globally the certification trajectory went as follows:
1. There was a kickoff meeting in which the assessment team received the necessary background information from GPR. You must think about issues like: what does the organization look like, what is the objective of the certification, who is involved in the certification trajectory. GPR also received an introduction from the assessment from the assessment team on the progress of the certification trajectory and the wishes and requirements with regard to information provision.
2. GPR was issued the standard and could subsequently perform a self evaluation based on the requirements per process area, with the central question: "Do we comply with the stated requirements, and if so, can we substantiate that?"
3. GPR gathered the substantiating evidence and transferred that to the assessment team (electronically and/or on paper). In an accompanying letter the delivered documents are linked to the requirements from the standard.
4. After studying the evidence material per process area one or more involved persons were interviewed by one or more assessors.
5. If so desired, during or after the interview, additional evidence could be requested.
6. The assessment team documented its findings. Thereby remarks could be made in two categories: critical findings, which had to be solved to obtain the certificate, and non-critical findings, which had to be solved within one year after obtaining the certificate. Eventually the assessors could provide advices without formal status.
7. The findings were verbally explained.
8. Subsequently GPR got the opportunity to either provide additional evidence or to put through short term process improvements.
9. Finally there was a second round of evidence, interviews and reporting, targeted at the earlier found defects.
10. During the first part of the assessment an observer ran along to evaluate whether the assessment process defined in advance and the formulation complied with the standards requirements.

For the assessment of this organization, consisting of approximately 100 persons who serve one large client, the assessment team needed a total of approximately 400 hours. This is including the re-assessments of processes, which in first instance did not comply with the standard. Especially the examination of the evidence took a lot of work.

Approximately 500 hours were used by GPR for the assessment and the preparative activities:
- project management   200 hours
- preparation and execution   300 hours

Thereby all 26 processes of the ASL model have been assessed. The kick off took one day of the whole management and assessment team, and there were five interview days. The activities of the project leader, who guided the whole process consisted of, among other things, the gathering of evidence, the organization of kick off and interview days, the internal communication around the assessment and the communication with the Lead Assessor.

From the first assessments a number of learning points have come forward. We mention a couple:

1. **A good preparation is half of the work.**
   Both the assessors and the application management organization must prepare themselves well.
   The management organization does this by first performing a self evaluation (see above) based on the standard. Next the evidence must be gathered and delivered. Our experience is that this takes a lot of work. It must always be evaluated what is relevant and what is not, how recent the information is, how 'hard' the information is.
   The assessors lack the knowledge of the organizations and the work methods followed. They will first gather background information in a familiarization discussion and will subsequently study the evidence with application of the same criteria: relevance, actuality, hardness.
   Even after examining the evidence sometimes it is difficult to obtain a real picture. For that reason subsequently the interviews are held, where all relevant questions can be asked and based on that additional 'evidence' can be requested.

2. **The standard digs deeper into application management and process maturity than ISO 9001.**
   GPR already possessed the ISO 9001:2000 certificate. This still did not lead to the conclusion that they were also ready for level 2 of the ASL standard. The ASL standard digs more into the content of the application management and states higher requirements for the process maturity. In the words of the relevant manager: "It is many times heavier than ISO 9000, but it also offers much more value for the organization itself".

3. **Both the management and the work floor must have the processes in good order, because level 2 is already quite heavy.**
   On a scale of 1 to 5 level 2 does not seem high. If one wants to achieve level 2 for just a number of processes, then the level is not exceedingly high, but if one wants to have level 2 at both the operational and the management levels, then it is not always easy. On the one hand the standard itself adds to that, because the requirements are high, on the other hand this comes due to the requested demonstrability. The assessors must see convincing evidence for complying with the requirements. That means that even at level 2 many items must already be documented.

The organization assessed is of the opinion: "It is not an exercise of one day, but it is for your own good to improve the organization to a professional application management organization. We have gained a lot from it, we have made large steps. It did cost a lot of effort, but it also delivered a lot. It led to awareness about what we are doing, about our position in the whole and about improvement issues which we can take up ourselves".

Conclusions

The NEN standard for application management is a factual measuring instrument, with a maximum of recognition for application management teams. Due to this factuality the standards framework distinguishes itself from general quality standards such as ISO 9001. Due to the specific requirements for both operational, management and strategic processes, and by concrete targeting of the work field application management the standard also distinguishes itself from 'adjacent' standards, such as ISO 20000.

A certification assessment does cost the necessary effort, but also produces a lot: insight in the current quality, possibly a 'declaration of good standing', but foremost the desire to keep doing it well and even more: the desire to do it better in the future. With this the standard is a source of inspiration for each team which wants to improve the quality of its competence.

About the authors:

Drs. Frances van Haagen *is senior management consultant at Ordina. She has been working more than twenty years in the IV/ICT as manager, organization and quality advisor. She guides organizations in the improvement of system development, ICT management and the dynamics between principal and supplier.*

Drs. Lucille van der Hagen *is business consultant at Getronics PinkRoccade and working in the IV for fifteen years. She guides organizations in the improvement of, among other things, IV-related work processes. In addition she is involved in knowledge sharing around ASL and BiSL, through the ASL Foundation.*

Dr. Machteld Meijer *is senior consultant with ICT process improvement and quality management as attention areas. She has delivered an important contribution to ASL and BiSL and offers publications, set up advice, trainings, guest speeches and presentations in this area.*

Ir. René E. Sieders *is principal consultant at Getronics PinkRoccade IPS&C and has been working for about twenty years in IV/IT in different functions and organizations, both in the work field Application management and in the Functional Management.*

All authors are member of the work group Certification of the ASL Foundation and the NEN Standards Commission for Application Management.

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